TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 18, 2006

Mr. Rafael Casanova (6SF-AP)
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Re: Falcon Refinery Federal Superfund Site, Ingleside, Texas
Comments to the Revised RI/FS Documents Report dated July 7, 2006

Dear Mr. Casanova:

The Texas Commission on Environmental Quality has completed review of the referenced submittals provided by Kleinfelder dated July 7, 2006. Our comments are enclosed.

If you have any questions, please contact me at (512) 239-1054.

Sincerely,

Phillip Wimsor P.E., Project Manager
Environmental Cleanup Section II

PWW/jc/fd/ts

Enclosures

Comments
Revised Remedial Investigation/Feasibility Study Documents dated July 7, 2006
Falcon Refinery Superfund Site
Ingleside, San Patricio County, TX
October 18, 2006

The Texas Commission on Environmental Quality (TCEQ) has performed review of the "Remedial Investigation/Feasibility Study (RI/FS) Documents" dated July 7, 2006 for the Falcon Refinery Superfund Site (Site), which consists of the RI/FS Work Plan (dated July 7, 2006) and the RI/FS Field Sampling Plan (dated July 7, 2006) prepared by Kleinfelder. The following comments are listed by the sections and pages corresponding to the documents.

Comments
Revised RI/FS Work Plan

A General Comments

As the substantive requirements of certain portions of the Texas Risk Reduction Program (TRRP) are potential Applicable or Relevant and Appropriate Requirements (ARARs), we believe that it is important for NORCO to conduct the assessment and evaluation of the affected property against the substantive elements of TRRP. Under the TRRP, affective property assessment does not require or contemplate the completion of a baseline risk assessment, as described in the U.S. Environmental Protection Agency's (EPA's) Risk Assessment Guidance for Superfund (RAGS). However, both processes ultimately yield media-specific constituents of concern and cleanup goals to achieve an acceptable residual risk for a particular site and future use condition. The two processes have such different approaches that it is difficult to make the determination if TRRP requirements are more stringent than federal requirements prior to the completion of the baseline risk assessments and remedial action objectives. Upon the completion of the risk assessments, the development of the remedial action objectives, and the completion of remedial alternative evaluation, if it is determined that certain TRRP requirements are more stringent than the site specific federal requirements, the TCEQ will identify those requirements as potential ARARs and request compliance with those requirements.

B Section 2.2.1 Site Physical Characteristics, Page 13:

The last sentence in the fifth paragraph references two additional tanks, N1 and N2, used to store product and CERCLA hazardous substances. These tanks are again referenced in Section 2.2.3 Nature and Extent of Contamination, this time also referring to them as Tanks 32 and 33 in the main processing area of the NORCO facility. Review of the figures and maps provided did not locate these tanks as either N1 and N2 or as Tanks 32 and 33. These tanks are reference numerous times throughout the submitted reports.

TCEQ's Comment: These tanks must be identified on site maps or figures when referenced.

C Section 4.2.1.1 On-Site Judgmental and Random Grid Surface Soil Samples, Page 31

1 This Section states that 42 judgmental sample locations in AOC-1 will be collected. This is again stated in Section 4.2.2 for subsurface soil samples, 42 judgmental samples.

However, Section 3.1 On-Site Judgmental Locations, 43 judgmental samples are stated will be collected, 12 at the North Location and 31 at the South Location.

TCEQ Comment: Please correct the inconsistencies.

2 Table 2, referenced in this Section is also inconsistent. The Title Block states 'UP TO 42 LOCATIONS' for On-Site Judgmental Samples in AOC-1 (North and South Facility), while the number of samples listed in the table for this area add up to 43 samples (43 for surface and 43 for subsurface samples).

TCEQ Comment: Please correct the inconsistencies.

D Section 5.5.20 Approach for Developing Preliminary Remediation Goals, Page 46

TCEQ Comment: During the site characterization phase, we request that the TCEQ Tier 1 Residential PCLs that are more stringent than the EPA Region 6 Human Medium-Specific Residential Screening Levels, be used as the screening level to assess the nature and extent of contamination. Please note that the more stringent Tier 1 Residential PCL of the soil to groundwater pathway or direct human exposure pathway should be used.

E Section 5.8.3.1.2 Compliance with ARARs, Page 83:

1 The first sentence of this section states "This evaluation criterion well be used to determine whether each alternative will meet all of the ARARs that will be identified in previous stages of the RI/FS process." Should this not read 'identified in subsequent stages of the RI/FS process?

TCEQ Comment: Clarify or correct text.

2 Page 33 of EPA's March 1, 2006 letter regarding Comments Concerning NORCO's Amended Draft RI/FS Deliverables, clearly directs NORCO to "include a discussion and preliminary list of the probable.....(ARARs) for the Site." No such list was found in the work plans submitted.

TCEQ Comment: This list must be provided and should include a clear discussion of all ARARs.

Comments
Draft RI/FS Field Sampling Plan

A Section 3.5 Off-site Judgemental Sampling, Page 28

The seventh paragraph states "There are 2 background sample locations (BG-01SD and BG-02S), one will be used to sample sediment and soil at locations that have not been impacted by the Site (Figure 27)."

TCEQ's Comments:

1 Figure 27 lists the samples as BG-1SD and BG-2SD. Please be consistent with location/sampling identification.

2 If one sample will be used for sediment and soil, what is the other sample to be used for? Background is typically considered to be a population of concentrations; therefore, the more samples collected the more accurate the estimate of background. The TCEQ recommends 8 background samples each for surface soil and sediment.

B Section 4.3 On-Site Judgemental Sampling, Page 32:

1. Paragraph 3 of this section contains the following sentence: "If temporary well results indicate that (1) site-wide conditions statistically exceed appropriate risk-based concentrations (....) and that (2) measured downgrading temporary well results statistically exceed concentrations in temporary upgradient wells, permanent monitoring wells will be installed to assess representative concentrations and trends."

2. While Paragraph 3 of page 33 of 93 in the QAPP states that: "Analytical results will be compared to COPCs (concentrations?) and if perimeter monitor wells have concentrations that exceed the appropriate..." action levels "... then offsite monitor wells will be installed. Otherwise, if concentrations are found to be below..." action levels, "... then the horizontal extent will have been defined".

TCEQ Comments: It is unclear from these passages and a general review of the documents what mechanism will be used to determine whether or not permanent monitor wells should be installed. The passage cited above from the FSP appears to indicate some "statistical mechanism"; however, the text in the QAPP appears to suggest that single sample results from each temporary well will be compared to action levels. The TCEQ would not view the latter as a "statistical mechanism" nor would we recommend the averaging (or other statistical combination) of well sample results across the temporary wells as may be suggested by the passage cited above from the FSP.

C Section 4.4.2 Background Sampling, Page 35:

The last paragraph of this section states "At each of the three locations, a surface sample will be obtained and sampled for metals, VOCs, SVOCs, PCBs and pesticides/herbicides." Again, this section references Figure 27 which only shows two background sampling locations.

TCEQ Comment: The apparent discrepance in the number and description of background samples to be collected must be clarified and consistent. The TCEQ recommends 8 background samples each for surface soil and sediment.

D Section 5.2, Grid Sample Designation, Page 37:

The example used for the grid sample designation appears to be incorrect. The example 'GS01SO-4.0-4.5' is explained as 'The first field, "G01S," identifies the grid sample number".

TCEQ Comment: Please correct the sample label's designations and be consistent.

Comments
Draft Quality Assurance Project Plan

A *TCEQ General Comments:*

Sections A7.2.4 through A7.2.7

These sections of the QAPP deal with Steps 4-7 of the DQO Process which are primarily concerned with the statistical aspects such as decision errors, statistical hypothesis testing and other aspects of a statistically designed sampling plan. As described in the FSP, the sampling plan developed for the Falcon Refinery RI uses both a judgmental approach for the historic process areas and a random approach for the other areas (wetlands, residential, etc).

Although the starting point of the grid for the grid samples may have been selected in some random fashion, it is not clear that the numbers of samples proposed in these areas were selected in accordance with the sample size equations provided within the Visual Sampling Plan software. If the numbers of proposed "grid samples" are intended as part of a statistically designed sampling plan the basis for this design should be included and specifically discussed. For example, the Type 1 and 2 error rates, the significance level and power and the estimate of the population standard deviation (e.g. the VSP inputs and results) should be included and discussed. Again, the TCEQ has no objection to a combination of judgmentally designed and randomly designed sampling plan for this site; however, if statistical concepts are used to design parts of the sampling plan the inputs and results should be thoroughly discussed.

IX.A.1.a

9

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Phil Winsor, Project Manager
Environmental Cleanup Section II

Date: August 24, 2006

From: Vickie Reat, Technical Support Section, Remediation Division

Subject: July 7, 2006 Remedial Investigation/ Feasibility Study (RI/FS) Work Plan
Falcon Refinery Superfund Site
Ingleside, San Patricio County Texas
Prepared for National Oil Recovery Corporation
Prepared by Klienfelder

I have completed my review of the subject document. This memo also includes substantial input from representatives of the U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA), and the natural resource trustee staff here at TCEQ. NORCO representatives are welcome to contact me if they have any questions concerning this review.

General Comments

1. In addition to copies provided to the U.S. EPA and TCEQ project managers, one copy of future submittals related to this project should be provided directly to each natural resource trustee contact indicated below. Note that copies should be in color as dictated by the document itself.

Tammy Ash USFWS c/o TAMU-CC 6300 Ocean Dr. Unit 5837 Corpus Christi, TX 78412	Jessica White NOAA c/o USEPA CRC Region 6 1445 Ross Ave. MC-6SF-L Dallas, TX 75202	John Wilder ** TCEQ PO Box 13087 Bldg D MC-225 Austin, TX 78711
Don Pitts TPWD 3000 South IH-35 Suite 375 Austin, TX 78704	Keith Tischler TGLO, Coastal Resources Stephen F. Austin Bldg 1700 N Congress Ave. Austin, TX 78701-1495	**Overnight deliveries to TCEQ contact should be addressed to: TCEQ Mailroom Building A TCEQ Staff Name, MC-225, Building D 12100 Park 35 Circle, Austin, TX 78753

2. The document does not identify an approach to be used for identification of chemicals with the potential for bioaccumulation for each particular media.

Absent a justification for an alternative methodology, we recommend the approach outlined in TCEQ, 2001[1] and TCEQ, 2006[2].

3. The baseline ecological risk assessment (BERA) should include a discussion of the topography encountered within the sediment sampling area to allow an understanding of the depositional areas sampled, as this is not clear from the aerial photos provided in the RI/FS.

Volume 1 of 2

1. 2.2.1.4 Surface Water Hydrology – The fourth paragraph indicates that the second probable point of entry is located at the dock facility on the Intracoastal Waterway. It would seem reasonable that releases could have occurred at the current and historic barge dock. Further, the wetlands reportedly drain through a culvert (according to the same discussion on page 15 and Figure 5) into the area denoted as the historic barge dock.

2. 2.2.1.4, Surface Water Hydrology - It is not known if the NPDES discharge permit was used. The second sentence in the last paragraph should be revised to state, "However, ***it is possible*** the permit was never used…".

3. 2.2.1.7 Endangered and Threatened Species – Here and elsewhere (Sections 5.6.3.1.4 and 5.6.3.2.1) there is a discussion of the potential for threatened and endangered species to occur in and around the refinery and adjacent wetlands. Reportedly the brown pelican, the reddish egret, Kemp's Ridley sea turtle, and the Green Sea Turtle are known to be in the vicinity. Additionally, the discussion indicates that potentially suitable habitat is available for the white-faced ibis, the opossum pipefish, and the West Indian manatee. Be advised that both federally-listed and state-listed species should be addressed in the BERA. In order to eliminate a threatened/endangered species as being potentially present, an ERA should provide supporting documentation from a wildlife management agency to confirm the absence of the protected species on the affected property. If this is not possible due to time constraints associated with the project, TCEQ recommends that NORCO provide a convincing discussion of the lack of suitable habitat by comparing the available habitat with the habitat needs of threatened/endangered species that could possibly occur in the county. It is not enough to simply state that no protected species are known to occur at the site.

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[1] TCEQ, 2001. Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas. December 2001. Texas Commission on Environmental Quality. RG-263 (revised).

[2] TCEQ. 2006. Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites In Texas RG-263 (Revised). Remediation Division. January. http://www.tceq.state.tx.us/assets/public/remediation/eco/0106eragupdate.pdf

This is different from a supported statement that none are expected to occur based on the available habitat and the needs of a threatened/endangered species. If the presence or absence of a protected species cannot be determined, then the species should be considered as being present and potentially impacted. For species known to use the area or suspected to use the area due to habitat suitability, the ERA must then demonstrate through exposure or action level determination that the species will either not be impacted, or that protective clean up levels will be developed. These demonstrations are usually accomplished by calculating the exposure and evaluating the risk to a receptor that is a surrogate (a receptor from the same feeding guild) for the protected species. In this case, the BERA should also explain why the particular receptor chosen is a suitable surrogate for the sensitive species. Finally, where a protected species is known to occur or could possibly occur at a site based on habitat suitability, any clean up levels should be based on the NOAEL toxicity reference value (TRV).

4. 5.5.11 Conceptual Site Model, page 41 and Figure 15 - Please correct the conceptual site model to show the fish ingesting fish/shellfish pathway for releases from the dock facility into marine/coastal waters.

5. 5.6 Baseline Ecological Risk Assessment - The BERA Plan as provided lacks some necessary detail to allow evaluation of the approach to be taken, particularly for sediments. Concerns include the following:

   - Text states that referenced sources will be consulted for appropriate sediment values and a hierarchy of values will be established. It is unclear why the values and hierarchy have not been established for this BERA work plan to allow for regulatory input prior to initial data application.

   - The listing of sediment ecological benchmarks provided in Appendix G is incomplete (e.g., an approach for Total PAHs is absent), unnecessarily mixed with soil values, and is inconsistent with the text in Section 5.6.2.1.3 - Sediments, which indicates TCEQ, 2001 as a benchmark source. Note that TCEQ, 2001 (previously noted) is not considered in the sediment benchmarks provided in Appendix G.

   - Benchmarks for any media sourced from the TCEQ ecological guidance should be based on the updated guidance provided in TCEQ, 2006 (previously noted).

6. 5.6.2.1.2 Groundwater/ Surface Water – NORCO should also use the surface water benchmarks provided in the document indicted in the previous comment, particularly if they are more stringent than the federal criteria or values in the ORNL document.

7. 5.6.3.1.8 Conceptual Site Model (and Figure 15) - The conceptual site model (CSM) for the ecological risk assessment does not show leaks/spills as a primary release mechanism to the On-Site Wetlands. Please revise as this pathway is

discussed at length in the text and will be evaluated in the risk assessment. NORCO should also change the legend to reflect that exposure scenarios are for both the HHRA and the ERA.

8. 5.6.3.1.5 Identification of Exposure Pathways – We understand that Figure 15 represents a preliminary CSM. The refined CSM should consider that mammals, birds, and reptiles could be indirectly exposed to site COPECs due to the ingestion of soil and sediment invertebrates and plants. It appears that Figure 15 currently only reflects the direct exposure pathways.

9. 5.6.3.1.6 Ecotoxicity of Contaminants – We agree that the sediment-to-invertebrate and sediment-to-fish pathways are important pathways for evaluation. This evaluation should consider population effects as well as possible risks to vertebrates that consume fish and invertebrates exposed to sediment COPECs.

   The last sentence states that screening benchmarks for amphibians and reptiles developed by ORNL will be used to assess impacts to these receptor groups. The ORNL document was not specified in the list of references. We are not aware of an ORNL document that provided screening values specifically for reptiles and amphibians. NORCO may need to perform a more rigorous quantitative evaluation of these receptors particularly where there is a possibility that a protected species could occur at or nearby the site.

10. 5.6.3.2.2 Exposure Point Concentrations – (Page 57) The hot spot evaluation should consider the magnitude of the chemical concentration as well as the habitat needs and home range of the receptor in question.

11. 5.6.3.2.2 Exposure Point Concentrations – (Pages 58 and 59) The last paragraph that continues on to page 59 discusses the groundwater-to-surface water pathway. If NORCO determines that there is a likely release of impacted groundwater to surface water, the groundwater-to-sediment pathway should be considered as well. In this case, sediment samples should be collected and analyzed in the area of upwelling or release of impacted groundwater. Comparison of groundwater concentrations to surface water criteria is not necessarily a good assessment of potential impacts to sediment in the area of the groundwater release. In this case, the evaluation can be supported by sampling/analysis of sediment samples collected in the area of the interface.

12. 5.6.3.3.2 - Derivation of Reference Toxicity Values - Selection of NOAEL toxicity values should not default to the highest available NOAEL unless the range of available toxicity data supports the selection (e.g., data are available for the relevant routes of exposure, study endpoints, test species and test concentrations). Additionally, the text does not address the higher level of protection afforded threatened and endangered species, such as documented protection at the NOAEL (see previous comment 3). Finally, it is unclear which

areas of the site will be evaluated using freshwater or marine screening benchmarks.

13. 5.6.7.2.1 Bioaccumulation and Field Tissue Residue Studies – Residue studies can also include sediment invertebrate residue for invertebrates in the wetlands or Intracoastal Waterway/ Redfish Bay.

14. 5.6.7.2.3 Toxicity Tests - The definitions provided for acute and chronic toxicity tests are inaccurate. When used to describe toxicity tests, these terms do not typically indicate *level* of exposure (the text states that chronic tests expose organisms to lower contaminant concentrations, and that acute tests involve exposure to relatively high concentrations) – they are most often are meant to characterize *duration* of exposure (short or long periods). The text should be revised to state that chronic tests are used to study the effects of continuous, long-term exposure, and that acute tests last a short time, generally 4 days or less and mortality is the response measured (Rand, 1995)[3].

15. Ecological Based References (Page 100) – The 1996 TNRCC Ecological Risk Assessment Guidance document is no longer valid. The 2001 document (and update, already cited) should be referenced instead.

Volume 2 of 2; RI-FS Field Sampling Plan

16. 2.3.3 AOC-3 Wetlands – The discussion implies that assessment activities are intended to evaluate releases from the pipelines. In reality, the assessment should also evaluate historical releases to the wetlands from the refinery site due to breaks in the berm walls (page 15 volume 1), releases of wastewater (page 12, last paragraph discussion), and/or releases from the pipelines.

17. 2.3.3 AOC-3 Wetlands – NORCO should revise the text which indicates that this section describes AOC-4.

18. 2.3.4 AOC-4 Current Barge Docking Facility – NORCO should revise the text which indicates that this section describes AOC-3.

19. 2.5 Release Profile – Similar to comment 9, Figure 14 needs to include exposure due to the ingestion of impacted fish, invertebrates, and plants. Also, releases to sediment should be suspected wherever there are possible releases to surface water (such as releases at the docking facility).

20. 2.5.3 Releases to Sediment and Surface Water – Releases could also occur where impacted groundwater interfaces with these media.

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[3] Rand, 1995. Fundamentals of Aquatic Toxicology: Effects, Environmental Fate, and Risk Assessment, second edition. Taylor and Francis.

21. 2.6 Receptor Profile - This section states that only samples from AOC-1 and AOC-4 will be analyzed for PCBs and pesticides, while Section 3.4 indicates that AOC-3 samples will be analyzed for PCBs and pesticides. Please revise text for consistency.

22. 2.6.2 Ecological Exposure Pathways and Receptors (page 22) - The second paragraph contains a statement that assumes terrestrial wildlife to be the primary target of risk based upon the CSM. The CSM also has completed pathways for aquatic receptors, which may also be at significant risk. The statement assumes too much at this point and does not contribute much to the field sampling plan, and thus should be omitted from this section.

23. 2.6.2 Ecological Exposure Pathways and Receptors – Regarding the discussion of protected species (page 22), see previous comment 3.

24. 2.6.2.2 Groundwater Related Ecological Exposures – See previous comment 11 regarding the possibility of groundwater impacts to surface water and sediment.

25. 2.6.2.3 Surface Water and Sediment Related Ecological Exposures (page 23) - It is not clear how the section provided in the reference (2.6.2.1, Soil Related Direct Ecological Exposures) addresses potential concerns for these aquatic exposure pathways when the reference is specific to terrestrial exposures. Aquatic and terrestrial exposure pathways are quite different in nature and should not be addressed as though they are the same. This section requires an explanation of the surface water and sediment exposure pathways.

26. 2.6.2.4, Dietary Ecological Exposures (page 23) - This section attempts to make the argument that substrate sampled in the wetlands could be treated as soil or sediment. In fact, the U.S. EPA and NORCO agreed in the April 2006 meeting that all samples from the wetlands would be treated as sediment and compared to sediment benchmarks. Understandably, both terrestrial-based receptors and aquatic-based receptors could be exposed to contaminants during periods of inundation and periods when parts of the wetland are dry. As such, both types of wildlife receptors should be evaluated. Section 2.6.2.3 (Surface water and sediment related ecological exposures) should also be expanded instead of deferring the reviewer to Section 2.6.2.1 (Soil related direct ecological exposures).

27. 2.7 CSM Summary (page 24) – NORCO should correct the CSM to show the fish ingesting fish/shellfish pathway for releases from the dock facility into marine/coastal waters.

28. 3.0 Sampling Objectives – (page 25, last set of bullets) – Regarding the human health surface water screening values, the TCEQ also has a list of RBEL (risk-based exposure level) values that can be used to evaluate chemicals that do not have a state water quality standard. Most of these are equivalent to the federal

criterion with a decimal adjustment for carcinogens. The RBEL table is available at: http://www.tceq.state.tx.us/remediation/trrp/guidance.html (go to links with TRRP-24).

29. On-Site Judgmental Samples – Looking at Table 2, 2 out of 12 samples from the North Site and 4 out of 31 samples from the South Site will be analyzed for PCBs. What will be the rationale for the samples for PCB analyses in soil?

30. 3.3 On-Site Random Grid Locations – Looking at Figure 18, why is the center of AOC-2 designated as AOC-1?

31. 3.4 Off-Site Random Grid Locations (page 28) – The discussion indicates that sediment samples will be obtained from the 0-0.5 foot interval. Where the sample is collected in the main channel of the wetland (such that it is normally inundated), this depth may be too shallow or too deep. Please see the sediment discussion in Section of 3.9.2.6 of the TCEQ's ERA Guidance (previously referenced). It is important for the field personnel to note sediment characteristics while sampling, including the depth of the biotic zone.

32. 3.4 Off-Site Random Grid Locations – There are 36 random grid sample locations planned for AOC-3. A small subset of these sample locations occur in areas that appear to be the normal drainage route for the wetlands. Since these areas would theoretically receive the bulk of the drainage except during periods of higher water, this may be a preferential pathway. More concentrated sediment sampling along these flow paths may be directed in the future to address this concern.

33. 3.5 Off-Site Judgmental Sampling – (Page 28, third paragraph) Three judgmental samples are proposed for Redfish Bay to characterize possible contamination associated with the former barge dock facilities. We suggest that NORCO consider placement of an additional sample location at the outlet from the culvert in the former barge dock facility as this location would reflect the collective release from the wetland area. We realize this was not discussed during our conference call regarding appropriate sample locations. This comment reflects our better understanding of the flow pathways associated with the site upon reading the draft RI/FS.

34. 4.4.2 Background Sampling – Proposed background sample locations are identified on Figure 27. Contrary to the discussion, Figure 27 only depicts 2 rather than 3 locations. Please clarify. Since comparison to background conditions is an important part of the risk management decision process, we suggest that NORCO expand this discussion to demonstrate why these are considered appropriate background sample locations for surface water and sediment. Possible discussion topics include comparability of soil types, comparability of physical and geochemical characteristics, land use history, and predominant wind direction (relative to the site).

35. 4.4.2 Background Sampling - The QAPP (page 17) states that representative background samples for soil and sediment will be collected, however the field sampling work plan indicates two background samples are to be collected as shown on Figure 27, both of which appear to represent soil only. The text then appears to indicate intent to rely on the TCEQ HRS data for sediment background concentrations. As indicated previously, the approach for determination of sediment background concentrations should be clarified, including any statistical approaches planned. We suggest that more background samples are necessary to adequately characterize background and to satisfy statistical assumptions associated with the calculation of a background number. We also recommend that sediment and surface water background samples be collected concurrently with the site media to provide an adequate reference for background. These deficiencies should be addressed before the sampling can take place. See previous comment 34 for additional concerns regarding background determination.

36. 6.3.2 Sediment Sampling and SOP No. 32 – We don't recommend using a Sludge Judge to sample sediment since this type of equipment is generally used to measure or sample settleable (suspended) solids found in sewage treatment plants, waste settling ponds, and impoundments containing waste. TCEQ, 2003[4] and U.S. EPA, 2001[5] provide methods for sampling sediment. Additionally Section 3.9.2.6 of the TCEQ 2001 Ecological Risk Assessment Guidance provides discussion regarding the sample depth for sediment sampling.

37. 6.3.3 Surface Water Sampling and SOP No. 21 – TCEQ, 2003 (previously cited) will also provide guidance on surface water sample collection.

Appendix E – Comparison of CLP CRQLs to Ecological Screening Benchmarks

38. In some cases, the benchmark listed is higher than the TCEQ ecological screening benchmark. NORCO should ensure that the most recent TCEQ benchmarks are used in Step 2 (see comment 5, last bullet). For surface water, if the wetlands are primarily fresh water, both fresh water and marine benchmarks (e.g., for Redfish

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[4]TCEQ. 2003. SWQM Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue. Monitoring Operations Division. RG-415. December 2003.
http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/mtr/swqm_procedures.html

[5] U.S. EPA. 2001. Methods for the Collection, Storage, and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual. Office of Water. EPA-823-B-01-002. October 2001.
http://www.epa.gov/waterscience/cs/collection.html

Bay) may be needed. NORCO should be cognizant of this for screening purposes and for selection of appropriate analytical methods.

39. For some metals and PAHs (anthracene, flouranthene, pyrene, copper, nickel, and thallium), the TCEQ freshwater or marine benchmark is lower than the CRQL indicated. NORCO should consider this for selection of appropriate analytical methods. Also consider that for some metals in surface water, the water quality standard (and benchmark) is expressed for the dissolved rather than total metal. For these instances, NORCO may want to consider if the surface water samples should be analyzed for both total and dissolved metals. Typically it is easier to compare a dissolved measurement with a dissolved standard. However, for food chain calculations, generally the total metal form is used in the calculations.

40. Instances where the screening value is less than the CRQLs are indicated with a check. It is not clear from the discussion in the Field Sampling Plan how this will be resolved. Please clarify especially where the particular COPEC could be reasonably expected at a former refinery site.

Volume 2 of 2; RI-FS Quality Assurance Project Plan (QAPP)

41. A7.2.5.2 – Specify the Risk-based Screening Level for the Decision (page 31) - On Table 4, PCB water benchmarks cites TCEQ, 2001 as the source; however the values listed are inconsistent with those provided by in the 2006 TCEQ update – which are based on a Total PCB.

42. A7.2.6.1 - Determine the Parameters of Interest (page 34) -

- For each media subject to chromium analysis, hexavalent chromium should also be included since cooling tower waste has been discharged at the site. Note that hexavalent chromium is not listed in any of the QAPP tables.

- There is not a QAPP table for sediment like those provided for soil and water. Although an abbreviated list for sediments is provided in Appendix G, the justification for the proposed values is absent and is inconsistent with text indicating some future identification of sediment values.

- Vinyl acetate is not listed in Table 4 or 5 for water and soil analysis, and further is not listed in Appendix G for a sediment benchmark.

- The PAHs listed in Tables 4 and 5 are not adequate to determine ecological risk from this group of chemicals and the PAHs listed in Appendix G do not include all those detected during the HRS (e.g., Benzo(g,h,i)perylene and Indeno(1,2,3-cd)pyrene). The RI/FS data collection should include those 17 PAHs listed in Box 3-6 of TCEQ, 2001 (previously cited).